

WHAT IS CLAIMED IS:

1. Method for encoding video data, comprising the following steps:
 obtain the digital file of an original image to be processed;
 process the image with estimation to obtain an approximation of said image,
 5 represented by motion vectors;
 calculate the difference between said original image and said approximation to
 obtain a residual image;
 obtain the bit plans of said residual image, represented by quadtrees;
 process said quadtrees with estimation to obtain an estimation quadtree file;
 10 calculate the difference between quadtrees of said residual image and quadtrees
 of said estimation to obtain a difference quadtree file;
 encoding quadtrees of said estimation quadtree file and said difference quadtree
 file; and
 output said motion vectors and data of said encoded quadtrees.
- 15 2. The method according to claim 1, wherein estimation of said original image
 comprises a matching pursuit processing and said motion vectors comprise inner
 product values and atoms provided in a related dictionary that represent said
 approximation.
3. The method according to claim 1, wherein said step of obtaining bit plains of
 20 said residual image comprising a step of distinguish said residual image into a base
 layer residual image and an enhanced layer residual image according to quality of
 image and a step of obtaining bit plains of said base layer residual image and bit
 plains of said enhanced layer residual image respectively, and wherein encoding
 processes of said bit plains is conducted in respect to bit plains of said base layer
 25 residual image and bit plains of said enhanced layer residual image respectively.
4. The method according to claim 1, wherein estimation of said quadtrees

comprising estimating quadtree data of a bit plain with quadtree data of a previous bit plain belonging to the same image frame.

5. The method according to claim 1, wherein estimation of said quadtrees comprising estimating quadtree data of a bit plain with quadtree data of a

5 corresponding bit plain belonging to a previous image frame relative.

6. The method according to claim 3, wherein estimation of said quadtrees when encoding said enhanced layer residual image comprising estimating quadtree data of a bit plain with union of quadtree data of all previous bit plains belonging to the same image frame and wherein estimation of said quadtrees when encoding said base layer

10 residual image comprising estimating quadtree data of a bit plain with quadtree data of a corresponding bit plain belonging to a previous image frame relative.

7. Method for decoding video data, comprising the following steps:

obtain video data comprising motion vectors of an image frame representing an approximation of image and codes representing quadtrees of bit plains of an residual
15 image related to said approximation; wherein codes representing quadtrees of bit plains of said residual image comprise codes representing an estimation quadtree and codes representing a difference quadtree;

decode said code representing quadtrees to obtain bit plain data of said residual image;

20 resume said residual image;

decode said motion vectors to resume said approximation of image; and

combine said residual image and said approximation to obtain an original image.

8. The method according to claim 7, wherein said motion vectors comprise inner product values and atoms provided in a related dictionary that represent said

25 approximation.

9. Device for encoding video data, comprising:

a motion estimation means to process an original image with estimation to obtain an approximation of said image, represented by motion vectors; and

a first encoder to calculate differences between said original image and said approximation to obtain a residual image and to obtain bit plains of said residual

5 image to be represented by quadtrees; and

a second encoder to process said quadtrees with estimation to obtain an estimation quadtree and a difference quadtree and to encode said estimation quadtrees and said difference quadtrees.

10 10. The device according to claim 9, wherein estimation of said original image by said motion estimation means comprises a matching pursuit processing and said motion vectors comprise inner product values and atoms provided in a related dictionary that represent said approximation.

11. The device according to claim 9, wherein said first decoder distinguishes said residual image into a base layer residual image and an enhanced layer residual image
15 according to quality of image and obtains bit plains of said base layer residual image and bit plains of said enhanced layer residual image respectively, and encodes bit plains of said base layer residual image and bit plains of said enhanced layer residual image respectively.

12. The device according to claim 9, wherein said second decoder estimates quadtree
20 data of a bit plain with quadtree data of a previous bit plain belonging to the same image frame.

13. The device according to claim 9, wherein said second decoder estimates quadtree data of a bit plain with quadtree data of a corresponding bit plain belonging to a previous image frame relative.

25 14. The device according to claim 11, wherein said second decoder estimates quadtree data of a bit plain with union of quadtree data of all previous bit plains

belonging to the same image frame, when encoding said enhanced layer residual image, and estimates quadtree data of a bit plain with quadtree data of a corresponding bit plain belonging to a previous image frame relative, when encoding said base layer residual image.

- 5 15. Device for decoding video data to decode encoded video data; wherein said video data comprise motion vectors of an image frame representing an approximation of image and codes representing quadtrees of bit plains of an residual image related to said approximation; wherein codes representing quadtrees of bit plains of said residual image comprise codes representing an estimation quadtree and codes representing a
- 10 difference quadtree; characterized in that said device decodes said code representing quadtrees to obtain bit plain data of said residual image to resumes said residual image, decodes said motion vectors to resume said approximation of image; and combines said residual image and said approximation to obtain an original image.
- 15 16. The device according to claim 15, wherein said motion vectors comprise inner product values and atoms provided in a related dictionary that represent said approximation.